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ABSTRACT

A descriptive study was conducted to compare current trade and industrial education (T & I) certification requirements throughout the United States with the 16 certification standards recommended in "Standards for Excellence in Trade and Industrial Education" by the U.S. Department of Education (USDE), 1985. Data were gathered from T & I certification regulations submitted by 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. Data were placed into the categories of: (1) preemployment requirements; (2) work experience requirements; (3) certification requirements; and (4) renewal requirements. Each of the USDE standards was restated, followed by a description of current practice as of August 1, 1989. This study will serve the needs of state departments of education and others who are seeking to update T & I requirements. (12 references) (Author/KC)

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Standards for Excellence in T & I Certification Five Years Hence

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Abstract

This manuscript is a summarization of a descriptive study which compares current trade and industrial education certification with the 16 certification standards recommended in Standards for Excellence in Trade and Industrial Education, United States Office of Education, 1985.

Data was gathered from T & I certification regulations submitted by 50 states, Washington, D.C., Puerto Rico, and Virgin Islands. Data was placed into the category of (a) pre-employment requirements, (b) work experience requirements, (c) certification requirements and (d) renewal requirements. The aforementioned data were utilized in the development of the research study Trade and Industrial Education in the United States and Territories (Duenk, 1989). Data provided from the complete Standards of Excellence in T&I Education (USDE 1985) can be obtained from the publisher. Please see the bibliography for information on how to obtain both of these publications.

Each of the USDE standards was restated, followed by a description of current practice as of August 1, 1989. This study will serve the needs of state departments of education and others who are seeking to update T & I certification requirements.

Standards for T & I Education -- Five Years Hence

In 1985, Standards for Excellence in Trade and Industrial Education was published by the United States Department of Education (USDE, 1985). The purpose of this study was to compare current certification practice with the certification standards of trade and industrial (T&I) education as delineated in the 1985 recommendations.

There is a paucity of published research in the vocational certification area. An exhaustive search reveals virtually nothing conclusive regarding relationships between teaching quality and certification standards.

Miller (1982) and Sherman (1983) indicated that T&I teachers differed markedly from teachers in other subject fields in the types of abilities required to function effectively in a laboratory environment, hence certification should reflect these atypical needs. Furthermore, they indicated that cognitive and motor skills taught by T&I teachers changed rapidly as technology changed, therefore updating must play a part in T&I recertification.

The National Occupational Information Coordinating Committee (NOICC, 1982) pointed out that T & I teachers must prepare students for work settings that involve atypical instruction such as OSHA regulations, union/management and differing work environments. Such information is typically learned on the job, again emphasizing the need for a modified certification process. Miller and Roehrich (1977) indicated that most states already had a modified approach

to T&I certification, but the variance in regulations posed a need for some type of standards. Duenk (1989) concurred that modified approaches were still in place but that attempts were being made to meet USDE standards.

Miller (1982) found that all 50 states studied required validated work experience as a cornerstone for secondary certification. In the T&I areas, the shortage of degreed teachers has led some states to develop certification which encouraged teachers to pursue an AS or BS degree. Ramp and Reeder (1970) found that 16 states had regulations which led to a B.S. degree for full certification. The United States Department of Education Standards (USDE, 1985) study found that 14 states adhered to this practice. Duenk (1989) found that two states required the BS degree for initial endorsement, two required the AS degree for full certification and eight states required the BS degree for full certification.

Brantner (1974) found that all T&I non-degree teachers who were working toward full certification, were still certified in some form, usually a Level I type of certificate which protected the teachers regarding state tenure laws. Welch and Garner (1976) found that the only significant certification variable which had a positive affect on student achievement was the amount of coursework completed by the teacher. Brantner (1974) noted that most states (36) which did not require a BS degree for full certification still had provisions which encouraged teachers to reach that goal. Duenk (1989) found that this number had increased

to 45 states and territories.

Warner's study (cited in USDE, 1984) concluded that among 50 states studied, occupational experience requirements were tending to decrease as educational requirements increased.

Methodology

The raw data utilized in this study was elicited from printed certification requirements submitted by state departments of education in 50 states, Washington, DC, Puerto Rico and the Virgin Islands. The names of T&I supervisors were obtained from the Directory of Federal and State Officials (School Shop, 1989). In those cases where no person was listed as being directly responsible for T&I programs, telephone calls were made to ascertain the names and addresses of the correct contact persons.

Forty-one responses were gained from the first request for T&I certification information. A second request produced four responses. The remaining responses were gained from telephone inquiries to state certification authorities.

A format for design of data tabulation was submitted to a panel of experts representing state departments of education personnel, vocational education directors, technical school principals and university professors. This panel recommended the parameters of the materials to be collected and the design of the study.

Inasmuch as the information received was voluminous and was documented in a variety of ways, the decision was made to utilize a two-phase approach to data collection. Phase one was to abridge

and categorize the raw data as follows:

1. Preemployment requirements
    a. Diploma/degree level required.
    b. Occupational competency evaluation requirements.
    c. Basic (academic) skill competency requirements.
    d. Licensure requirements
    e. Preservice (orientation) requirements.
    f. Prior coursework/seminar requirements.
    g. Other preemployment requirements.
2. Work experience requirements
    a. High school graduate or GED entrance level.
    b. Postsecondary graduate entrance level.
    c. BS/BA or higher graduate entrance level.
    d. Recency and continuity requirements at entrance level.
    e. Other work experience requirements (coop apprenticeship, etc).
3. Certification requirements
    a. Titles of certificates at all levels.
    b. Length (in years) of each certificate level.
    c. Requirements for each certificate and/or levels within a certificate.
    d. Renewal requirements (if mandated) for each level.
4. Renewal
    a. Renewal of full certificate requirements.
    b. Time provisions for renewal.

Only occupational preparatory program certification information was extracted. Information dealing with specialized requirements, industrial cooperative training, related subjects, T&I special education and apprenticeship education were eliminated from the study in the interest of (a) brevity, and (b) a need for identical standards comparison. This study was limited to secondary certification, although in a few states where secondary

and postsecondary certification were administered by the same agency and were comingled, postsecondary information was listed for clarification purposes.

In cases where certification requirements were unclear or incomplete, telephone calls were made to SDE officials and/or certification authorities for further clarification. In numerous situations, there were contradictions between requirements listed in the certification manuals and actual practice as confirmed by telephone. In such cases, printed backup materials issued by the state T&I agency or certification division were requested to validate the accuracy of information.

Following the completion of the aforementioned T&I certification descriptive document, copies were sent to the original respondents in the 53 states and territories. An accompanying letter requested that the document be reviewed and returned for accuracy of information within a two week period if errors were noted. Fourteen state agencies returned the documents with suggested corrections. The original document was modified and distributed to those respondents who had requested copies.

Phase two of the investigation was the compilation of phase one data into comparative tabular formats. The expert committee reviewed and assessed ways of presenting data in the most useful format for study by certification committees and others as sources for comparative data. The decision was made to compile the data into 11 areas as follows:

1. Work experience requirements.

2. Recency of occupational experience.
3. Occupational skill evaluation requirements.
4. Basic (cognitive) skill evaluation preemployment requirements.
5. New teacher orientation courses/workshops.
6. States with requirements leading to degree completion.
7. T&I certificate levels and renewal periods.
8. Courses/workshops required for initial certification.
9. Course/workshop requirements for second level certification.
10. Course/workshop requirements for third and successive levels of certification.
11. Highest levels for full certification and renewal requirements.

Tables were developed for each of the aforementioned areas including pertinent and comparative information for 53 states and territories. The information as presented in the tables and accompanying explanations were intended for use by SDEs and other groups interested in the current status of T&I certification and the evolving nature of state regulations. Information from the aforementioned table was summarized and presented for each of the sixteen USDE recommended certification standards.

Results

The following discussion provides USDE (1985) recommended standards followed by short summaries of current practice in 50 states, Washington, D.C. and two territories.

Level I Certification

Standard: Level I Certification

1. Recommended: The applicant possesses a high school diploma or GED certificate.

A high school diploma or equivalent was required in all states but Alaska, Iowa, Minnesota, Utah, and Washington. In Minnesota teachers without a high school diploma were admitted to university courses by special arrangement. In the three other states mentioned, high school graduation became mandatory if the certificate was to be renewed..

2. Recommended: The applicant shows evidence of occupational proficiency and completion of an appropriate learning period such as a registered apprenticeship, military training, secondary and/or post secondary or on-the-job experience in the occupation to be taught.

All states and territories had work experience requirements ranging from 1,000 to 16,000 hours depending on amount of college credit which the applicant had earned. The trend was toward an "ideal mix" of occupational experience and educational experience. The learning period was defined by states in different ways, such as (a) internship, (b) apprenticeship, (c) college credits (or degree in the specialty), (d) military service in the specialty or (e) designated hours as a wage earner. Many states left the learning period open to individual assessment. Delaware, Georgia, Maine, Pennsylvania, Tennessee, Virginia, Washington and Wyoming specified a learning period in the requirements. District of Columbia, Florida, Indiana, Nevada and Vermont provided an option in the requirements to include the apprenticeship or journeyman equivalency. Other states defined yearly or hourly requirements without reference to a learning period. Oregon and Rhode Island

utilized local committees to make recommendations to the state. In summary, all states and territories did meet this standard but with greatly varied interpretations of "learning period."

3. Recommended: (a) The applicant verifies at least 5 years of wage earning experience in the occupation to be taught.

In states where T&I teachers were allowed to begin teaching with a high school diploma 28 states required 10,000 hours (5 years) or more, (including "the learning period" as 4 years). At the AS degree teacher entrance level, 35 states counted the occupational training (in specialty) period as wage earning experience. The amount of work experience required above the AS degree entrance level varied from 2,000 hours (Illinois) to 12,000 hours (Nevada). At the BS degree T&I teacher entrance level, South Carolina required only 1,000 hours for a class 3 certificate and Utah required only a passing score on the National Occupational Competency Institute (NOCTI) examination. Ten states required 6,000 hours above the BS degree teacher entrance level. Twenty-five states indicated that the BS must be in the specialty. In the 16 states where provisions were made for the BS outside of the specialty there was a variation of 2,000 hours (Illinois) to 10,000 hours (Montana). In summary, no state required the standard of 5 years of wage earning experience for all 3 teaching entrance levels surveyed.

3. Recommended: (b) The wage-earning experience reflects those tasks performed by incumbent workers in the occupation.

The final assessment of appropriateness of wage earning experience as it relates to the teaching job was a state department of education (SDE) responsibility in all states and territories surveyed. Virginia regulations stated that competencies for all programs be identified through VTECS, IDECC or other appropriate research. Usually however, statements in the certification, when located, were too vague to shed light on actual enforcement. For example Mississippi Secondary Regulations (1988) stated "...to be instructionally competent, a teacher must have had formal training and experience which develop the knowledge, skills, and attitudes necessary to prepare students for successful entry into business and industry as productive employees and citizens" (p. 1). In Rhode Island, a state Credentials Review Committee examined the work credentials of each candidate and provided recommendations to the SDE. In Oregon a local school Instructional Appraisal Committee served the same function. In summary, these two states came closest to actual practice of the Recommendation 3(b).

3. Recommended: (c) Three years of wage earning experience are within the past five years.

Twenty states and territories had recency of occupational experience requirements. Random phone calls to twelve other SDE agencies indicated that recency was generally looked upon as a variable along with other qualifications but was not specifically mandated. Only Ohio and Oklahoma (HS grad-entrance) had certification which conformed exactly with Recommendation 3(c). This is not to say that all of the remaining 18 states did not have

realistic recency regulations. Massachusetts, for example, required that 6 years of work experience be in the last ten years. Colorado required that all work experience be in the last ten years, with 1,000 hours in the last five years. Idaho, on the other hand, required three months of work experience in the last five years. Three states, Alaska, New Jersey and New York had full-time or consecutive work experience requirements for full certification. In summary, two states, Ohio and Oklahoma conformed with Regulation 3(c).

4. Recommended: The T & I teacher exhibits personal qualities that contribute to the fulfillment of professional responsibilities.
   (a) The teacher adheres to a written code of ethics related to the performance of professional teaching responsibilities.
   (b) The teacher demonstrates adequate and appropriate language skills.
   (c) The teacher demonstrates leadership skills in the classroom, school and the profession.
   (d) The teacher adheres to acceptable school policies and practices regarding personal appearance.

The personal qualities listed in the Standards of Excellence in T&I Education were addressed as general statements for all teachers in all certification manuals. Only Georgia and Virginia, however, listed such specific standards for T & I. In these cases, recommendations a, b, and c, were addressed. Recommendation (b), (written and oral language skills) was addressed by 27 states which required a passing score on a basic skills test as a pre-employment condition. Eleven of these states required admission to a

university as a degree pursuing student as a condition of initial teaching employment, further strengthening the language skills recommendation. It can be concluded that the No. 4 Recommendation is being met only partially and subjectively at the state certification level. Certainly the locality can address these recommendations through in-service activities.

5. Recommendation: The applicant demonstrates occupational competency through validated current journeyman level or equivalent trade competency examinations. The examination shall:
   (a) include oral, written and performance components.
   (b) be administered by qualified professionals.
   (c) be completed prior to employment as a teacher.

Thirty states and territories indicated that they used the NOCTI exam (or equivalent) in some way for certification purposes, however, only 13 states utilized it as outlined in the three aforementioned conditions. Out of the remaining 17 states, 13 used the NOCTI as one option for assessing competency. The remaining four states used either VICA exams or locally developed exams. Utah allowed a passing score on the NOCTI in lieu of occupational experience.

6. Recommendation: For those occupations requiring federal or state licensure, the applicant holds such a license at the time of application for certification and maintains the license during the validity of the certificate.

All states and territories required occupational licensure as mandated by state regulation. The maintenance of such a license was not addressed in the regulations, however, phone calls to 15

states indicated that maintenance of licensure was handled locally.

7. Recommendation: Nondegree and noneducational degree teachers complete a beginning workshop dealing with basic classroom/laboratory survival and management skills prior to assuming teacher responsibilities.

Nineteen states required survival skill workshops varying in time from 24 clock hours to a high of 60 clock hours. Only seven states required that these workshops required college credit. The other 12 states allowed either college or non-college experiences. Ten of the 19 states had special provisions which allowed for such a workshop during the first year of teaching. In summary, only nine states are meeting Recommendation No. 7.

8. Recommendation: The applicant annually participates in professional development, continuing education or occupational update activities to maintain the validity of Level I Certification. He/she completes at least an 18 semester hour planned sequence (or equivalent in quarter hours) of professional education courses during the validity of Level I, consisting of those competencies specified under Teacher Education Standards D or E. (USDE, 1985).

All states required the aforementioned activities during Level I certification, however 28 states did not spell out that these activities be completed annually. In most cases, however the applicant would not be able to complete the Level I certification if segments were not scheduled on an annual basis. Level I certification varied from one year (20 states) to 10 years (one state). To remain valid 17 states met the recommendation by requiring 18 or more credits during the first certification level.

It was impossible to delineate the exact number of states which required the competencies stated in Teacher Education Standards D and E of Standards of Excellence in T&I Education (USDE, 1985) because several states delegated course selection to the university. This was especially true if university program acceptance was a mandatory condition of certification. Among states which listed specific requirements, methods of teaching was listed most often. Youth organizations, safety, and education psychology were the least frequent requirements.

9. Recommendation: The Level I certificate is for no more than three years and is nonrenewable.

Initial certificates were issued for one year in 20 states, two years in seven states, three years in 13 states, and four or more years in the remaining states. The four or more category also counted states which required the BS degree for initial endorsement. Only seven states indicated that the initial license was nonrenewable. Although 40 states met the time recommendation, only five of these met the non-renewal recommendation.

Level II Certification

Standard: Level II Certification.

1. Recommended: The applicant has demonstrated acceptable teaching ability during the validity of the Level I Certificate and has been recommended by the employing agency for Level II certification.

Most states and territories were fulfilling this standard with the exception of 6 states and territories which did not have a Level II certificate title. These were Alaska, Hawaii, Nebraska,

Puerto Rico, Wisconsin and Wyoming. Hawaii and Wisconsin fell into a different category because degrees were required as a condition of initial employment. The other states mentioned did have renewal categories of the same certificate title which corresponded to increased level (new title) certificates.

2. Recommended: The applicant completes 24 semester hours or equivalent quarter hours of professional vocational courses approved by the state certifying agency. The 24 semester hours include instruction and demonstrated competency in program planning and development, instructional planning and evaluation, laboratory management student evaluation, student organizations, program evaluation, and principles and philosophy of vocational education. Up to 12 of the 24 credits may be earned through successful completion of a nationally recognized occupational competency examination.

   After Level II, the balance of credit earned through successful completion of a competency examination may be used as determined by an institution offering a trade and industrial teacher education program. Normally this would be accepted as part of the degree requirements.

Forty-seven states had a second level of certification which bore a different or new certificate title. The validity period varied from 2 years to life. Nine states have required 24 or more semester hours of credit during this period. Fourteen states required courses in the specific areas named in the standards. The others indicated "professional education (not specified) or "planned by university" in cases where a university program was

mandated. Institutional acceptance of an exact number of credits for occupational competency were not addressed in the certification. In conclusion, 9 states met the 24 semester hour recommendation. The ratio of professional courses and specialty credit/courses is inconclusive.

3. Recommended: Level II certified trade and industrial instructors annually participate in occupational and professional continuing education activities to maintain occupational and teaching proficiency. These activities may include (a) industry sponsored programs, (b) independent study,(c) college courses, (d) contract teaching for industry, (e) military training programs and (f) in-service workshops.

All states with Level II certification allowed certification credit for some of the types of activities delineated. Usually these activities were simply categorized as "staff development" and no accurate tabulation of exact categories was possible. It is concluded that all states which had a Level II certification met this standard.

4. Recommended: The Level II Certificate is valid for no more than three years and is not renewable.

Second level certificates were issued by the states as follows:

Years Valid	No. of States
1	1
2	3
3	4
4	2
5	19
*6 or more	16
Unreported	2

*counts Life Certificates

Only two states had a specific nonrenewal recommendation at Level II. In conclusion, 8 states met the "no more than three years" recommendation but only 2 indicated nonrenewal.

Standard: Level III Certification

1. Recommended: The applicant has demonstrated at least two years of acceptable teaching ability during the validity of the Level II certificate and has been recommended by the employing agency for Level III certification.

Although successful teaching experience was addressed in the T & I certification requirements of 7 states, only two states met this certification standard which recommended that 2 out of 3 years of teaching at Level II be required to advance to Level III.

2. Recommended: During the 5 year validity of the Level III certificate.

   (a) The applicant completes an additional 18 semester hours or equivalent quarter hours of professional and occupational development activities of which a minimum of 240 clock hours must be in directly related occupational teaching.

Of the 24 states and territories which had third level certification, 14 states required the 18 semester hours or higher as recommended. Only two states required a minimum of 240 clock hours of related employment, although this was an option in several states.

   (b) Recommended: All professional and occupational development activities are approved by the appropriate state certifying agency.

SDE Professional and Occupational activity approval was

required in all states and territories studied.

Local plans were developed in Indiana, Maine, Massachusetts, Mississippi, New Hampshire, New Mexico, North Dakota and Vermont. Such local plans obviously differed in scope for the locality and the individual applicant, however, SDE approval was required in all cases.

3. Recommended: The Level III Certificate is valid for no more than 5 years and may be renewed every 5 years upon completion of a combination of six semester hours or equivalent quarter hours of professional vocational courses and state-approved occupational updating activities, and the recommendation of the employing agency with input from the advisory committee.

Third level certificates are issued by 24 state departments of education as follows:

Years Valid	No. of States
Life	2
6	1
5	15
4	2
3	2
Until BS reached	2

Input from the employing agency and/or advisory committee was indicated for only 8 states where local plans were submitted. Semester credits required for Level III certification were as follows:

Sem. Cr.	No. of States
BS + 3	1
BS	7
90 or BS	1
30	1

18	1
15	2
12	2
10	1
7	1
6	3
4	1
3	1
0	1

In conclusion, 12 states met the 5 year maximum recommendation and 21 states required the 6 semester credit minimum recommendation. Only eight states indicated employing agency involvement.

4. Recommended: The state educational agency responsible for approving trade and industrial education programs develops/adopts a certification standard to ensure that the experienced trade and industrial education teachers will be updated annually in their occupational area.

All states indicated updating opportunities to secure certification renewal credit at the end of the full certification period. No states, however, required an annual update in the specific occupational area. When updating requirements were given they were allowed any time during the stated renewal period rather than on an annual basis. Hence no states or territories conformed to the standard.

Conclusion

1. The Standards for Excellence in T&I Education did not appear to have great impact on certification standardization. All states and territories met only standards Level I, (2),

Level II, 3, and Level III (26).

2. It was difficult to show accurate relationships for comparative purposes because only 24 out of 53 states and territories studied had three levels of certification as recommended in the standards.
3. Accurate relationships among time periods and certification levels were difficult to assess inasmuch as there was a large variation in mandated SDE time periods.
4. Because of the minimal relationships observed between the standards and actual practice, it appears that T&I nondegree certification reciprocity is not a major priority among SDEs.
5. Nationally, T&I education is behind other disciplines in developing quality certification. Agreement among the states and territories in following Standards of Excellence in T&I guidelines is slow in forthcoming.

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